Early Identification of Intracranial Hemorrhage Using a Predictive Nomogram

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OBJECTIVES: To identify predictive signs and symptoms occurring in hospitalized adults with hematologic malignancies with intracranial hemorrhage (IH).

SAMPLE & SETTING: In a National Cancer Institute (NCI)-designated comprehensive cancer center, a retrospective matched case-control design included adult inpatients with hematologic malignancies with \( n = 39 \) and without \( n = 39 \) IH.

METHODS & VARIABLES: Conditional logistic regression, \( t \) test, and Fisher’s exact tests were used to assess increased risks for IH and the development of a prognostic nomogram with signs, symptoms, and laboratory values relevant to IH.

RESULTS: Composite outcomes for signs, symptoms, and laboratory values were included in a prognostic nomogram that had good discriminative ability to predict IH, with a bootstrap corrected concordance index of 0.766 (95% confidence interval \([0.657, 0.866]\)) and good calibration. Prognostic nomogram predicted patients with prolonged activated partial thromboplastin time (APTT) (greater than 30.6), headache, and systolic blood pressure (SBP) of 140 or greater were more likely to have IH.

IMPLICATIONS FOR NURSING: Nurses should recognize that patients with the combination of prolonged APTT, SBP of 140 or greater, and headache are more likely to have IH.

KEYWORDS intracranial hemorrhage; hematologic malignancies; head bleed

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